

**IN THE CLAIMS**

Please amend the claims as follows:

1. (Original) A multiple-domain processing system, comprising:
  - a first processing domain having a first host processor and at least one first end node;
  - a second processing domain having a second host processor and at least one second end node; and
    - a multi-dimensional switching fabric coupled to said first processing domain and said second processing domain to provide peer-to-peer packet communication within said processing system on multiple orthogonal planes, a first plane providing intra-domain packet communication and a second plane providing inter-domain packet communication.
2. (Original) The multiple-domain processing system of claim 1, wherein:  
said first host processor includes a tightly-coupled processor complex.
3. (Original) The multiple-domain processing system of claim 2, wherein:  
said first and second processing domains are loosely-coupled.
4. (Original) The multiple-domain processing system of claim 1, wherein:  
said multi-dimensional switching fabric includes at least one local switch associated with said first processing domain, at least one local switch associated with said second processing domain, and at least one global switch to provide packet communication between said first and second processing domains.
5. (Original) The multiple-domain processing system of claim 4, wherein:  
said at least one local switch associated with said first processing domain includes local packet routing information and global packet routing information.

6. (Original) The multiple-domain processing system of claim 5, wherein:  
said local packet routing information includes a local lookup table and said global packet routing information includes a global lookup table.
7. (Original) The multiple-domain processing system of claim 5, wherein:  
said local packet routing information includes memory map information and said global packet routing information includes a global lookup table.
8. (Original) The multiple-domain processing system of claim 5, wherein:  
said at least one local switch associated with said first processing domain selects, based on information within a received packet, either the local packet routing information or the global packet routing information for use in routing the received packet.
9. (Original) The multiple-domain processing system of claim 8, wherein:  
said information within said received packet includes a local/global flag.
10. (Original) The multiple-domain processing system of claim 8, wherein:  
said information within said received packet includes packet destination information.
11. (Original) The multiple-domain processing system of claim 4, wherein:  
said at least one global switch includes global packet routing information for use in routing a received packet based on destination domain information within the received packet.
12. (Original) The multiple-domain processing system of claim 1, wherein:  
said first host processor includes a packet generator to generate a packet for delivery to a destination node that includes information identifying a domain of the destination node.

13. (Original) The multiple-domain processing system of claim 1, wherein:

    said first host processor includes a packet generator to generate a packet for delivery to a destination node that includes information identifying a plane within the multi-dimensional switching fabric in which the packet is to be routed.

14-41. (Canceled)

42. (New) A system comprising:

    a plurality of processing subsystems, each processing subsystem including a plurality of processing domains; and

    a multi-dimensional switching fabric coupled to each of the plurality of processing subsystems to provide peer-to-peer communication within the system on multiple orthogonal planes, including a first plane providing intra-domain communications, a second plane providing inter-domain communication within each of the plurality of processing subsystems, and a third plane providing communication among the plurality of processing subsystems.

43. (New) The system of claim 42, wherein one or more of the plurality of processing domains comprises:

    a first processing domain having a first host processor and at least one first end node; and  
    a second processing domain having a second host processor and at least one second end node.

44. (New) The system of claim 43, wherein the first host processor comprises a tightly-coupled processor complex.

45. (New) The system of claim 43, wherein the first processing domain and the second processing domain are loosely-coupled.

46. (New) The system of claim 42, wherein the multi-dimensional switching fabric comprises local routing information, global routing information, and universal routing information.

47. (New) The system of claim 46, wherein the local routing information comprises a local lookup table, the global routing information comprises a global lookup table, and the universal routing information comprises a universal lookup table.

48. (New) The system of claim 46, wherein the local routing information comprises memory map information, the global routing information comprises a global lookup table, and the universal routing information comprises a universal lookup table.

49. (New) The system of claim 46, wherein the multi-dimensional switching fabric selects, based on information within a received packet, either the local routing information, the global routing information, or the universal routing information.

50. (New) The system of claim 49, wherein the information within the received packet comprises a local/global/universal flag.

51. (New) The system of claim 49, wherein the information within the received packet comprises packet destination information.

52. (New) The system of claim 43, wherein the first host processor comprises a packet generator to generate a packet for delivery to a destination node that includes information identifying a domain of the destination node, and to generate a packet for delivery to a destination node that includes information identifying a plane within the multi-dimensional switching fabric in which the packet is to be routed.

53. (New) A method comprising:

receiving an information packet at a multi-dimensional switching fabric;  
determining whether the information packet is to be transmitted on a first plane or a second plane; and  
transmitting the information packet on the first plane or the second plane.

54. (New) The method of claim 53, wherein receiving the information packet at the multi-dimensional switching fabric comprises receiving the information packet comprising an indication of a destination domain of the information packet and an indication of a destination node of the information packet.

55. (New) The method of claim 53, wherein receiving the information packet at the multi-dimensional switching fabric comprises receiving the information packet including a local/global flag.

56. (New) The method of claim 55, wherein transmitting the information packet on the first plane or the second plane comprises changing the local/global flag from a global indication to a local indication.

57. (New) The method of claim 53, wherein determining whether the information packet is to be routed on the first plane or the second plane comprises using the information within the information packet.

58. (New) The method of claim 53, wherein transmitting on the first plane comprises using a local routing information, and transmitting on the second plane includes using a global routing information.

59. (New) The method of claim 53, wherein determining whether the information packet is to be transmitted on a first plane or a second plane further comprises:

determining whether the information packet is to be routed on a third plane comprising using information within the information packet, and

transmitting on the third plane comprising using a universal routing information.